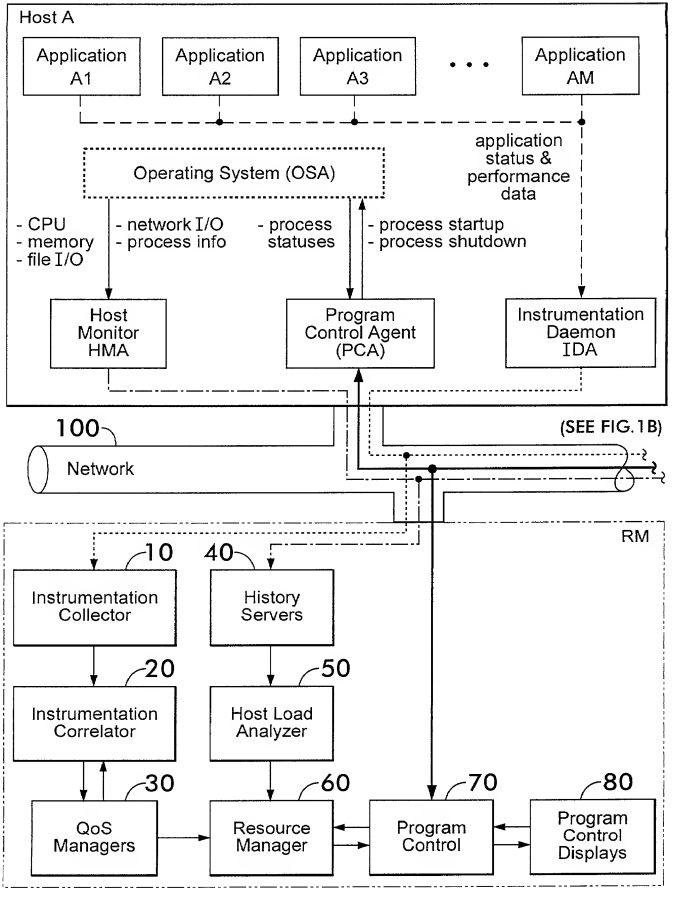

Host A
Application A1
Application A2
Application A3
Application AM
application status & performance data
Operating System (OSA)
- CPU
- memory
- file I/O
- network I/O
- process info
- process statuses
- process startup
- process shutdown
Host Monitor HMA
Program Control Agent (PCA)
Instrumentation Daemon IDA
100
Network
(SEE FIG. 1B)
RM
10
40
Instrumentation Collector
History Servers
20
50
Instrumentation Correlator
Host Load Analyzer
30
60
70
80
QoS Managers
Resource Manager
Program Control
Program Control Displays

FIG. IA

FIG.IB

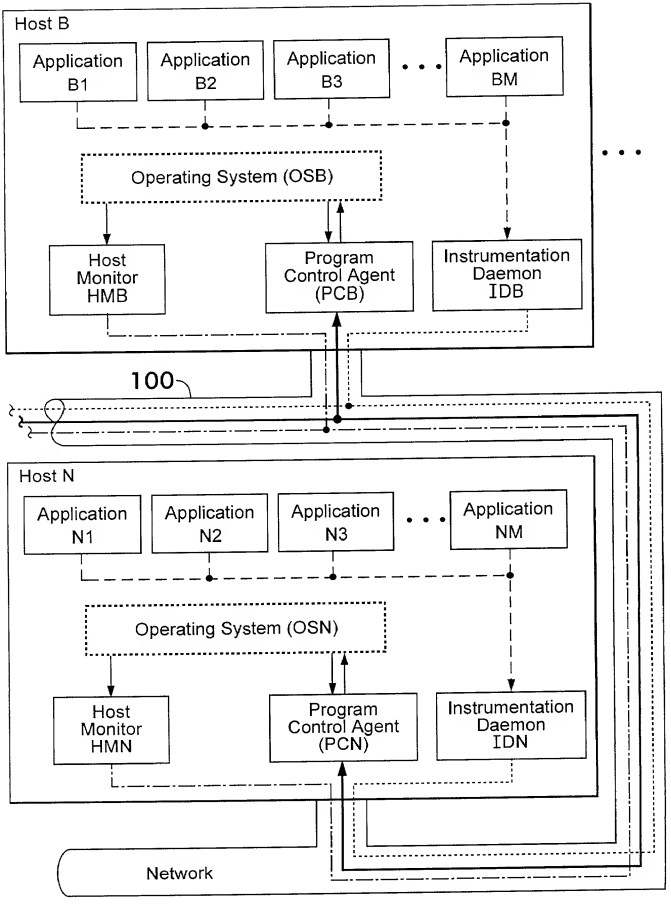

Host B
Application B1
Application B2
Application B3
Application BM
Operating System (OSB)
Host Monitor HMB
Program Control Agent (PCB)
Instrumentation Daemon IDB
100
Host N
Application N1
Application N2
Application N3
Application NM
Operating System (OSN)
Host Monitor HMN
Program Control Agent (PCN)
Instrumentation Daemon IDN
Network

FIG.2A

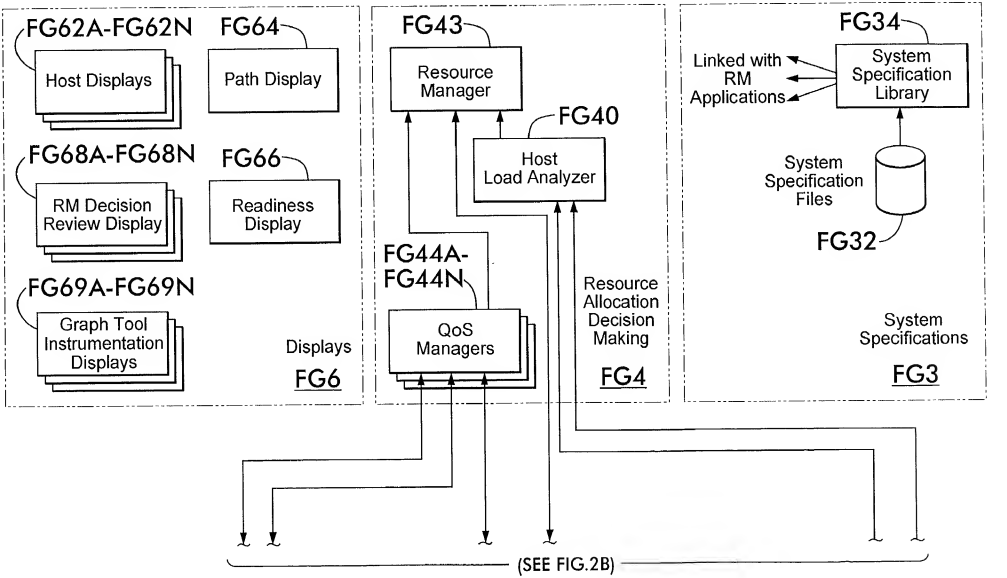
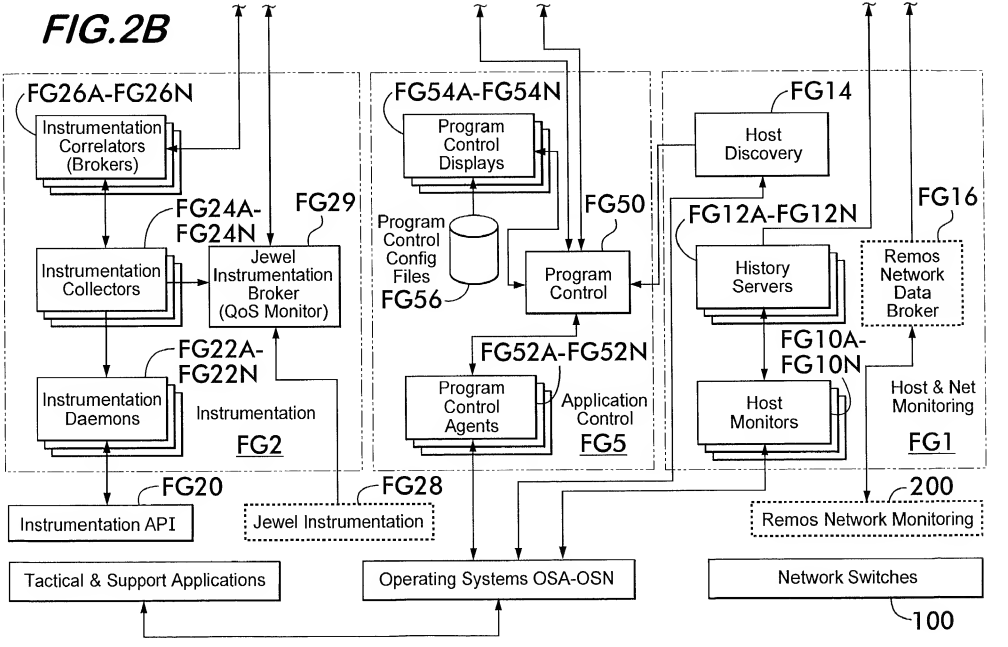
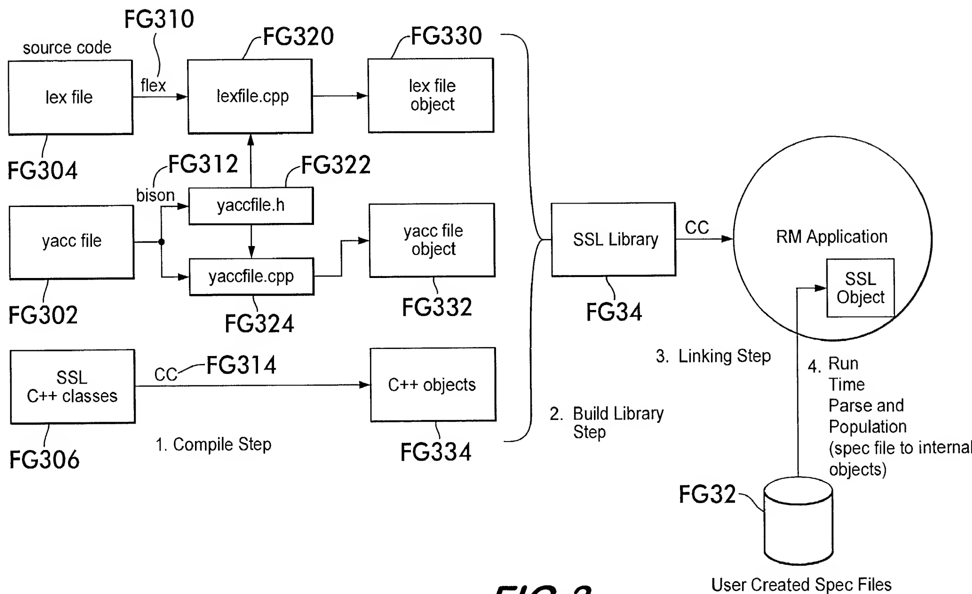


FIG.2B





source code
lex file
FG310
flex
FG304
lexfile.cpp
FG320
lex file
object
FG330
FG312
bison
yaccfile.h
FG322
yacc file
FG302
yaccfile.cpp
FG324
yacc file
object
FG332
SSL
C++ classes
FG306
CC
FG314
C++ objects
FG334
1. Compile Step
2. Build Library
Step
SSL Library
FG34
CC
3. Linking Step
RM Application
SSL
Object
4. Run
Time
Parse and
Population
(spec file to internal
objects)
FG32
User Created Spec Files

FIG.3

FIG.4

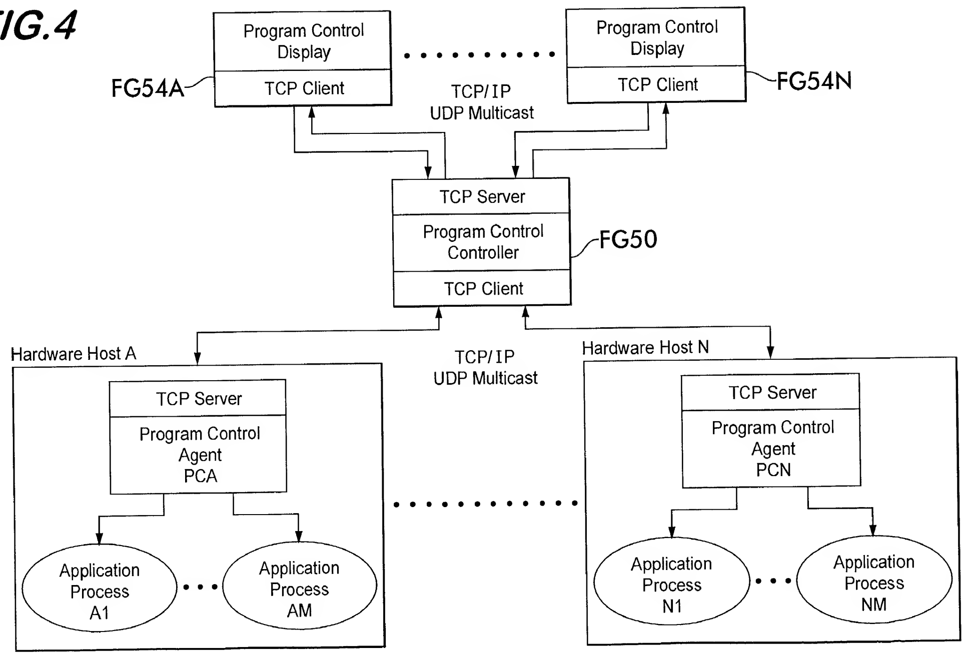
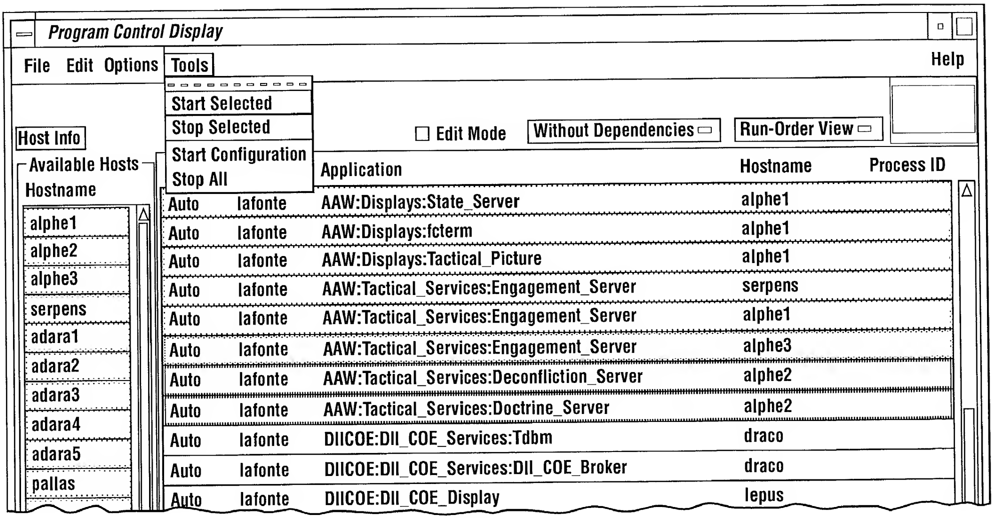

FG54A
Program Control
Display
TCP Client
Program Control
Display
TCP Client
FG54N
TCP/IP
UDP Multicast
TCP Server
Program Control
Controller
TCP Client
FG50
Hardware Host A
TCP Server
Program Control
Agent
PCA
Application
Process
A1
Application
Process
AM
TCP/IP
UDP Multicast
Hardware Host N
TCP Server
Program Control
Agent
PCN
Application
Process
N1
Application
Process
NM

FIG.5A



(SEE FIG.5B)

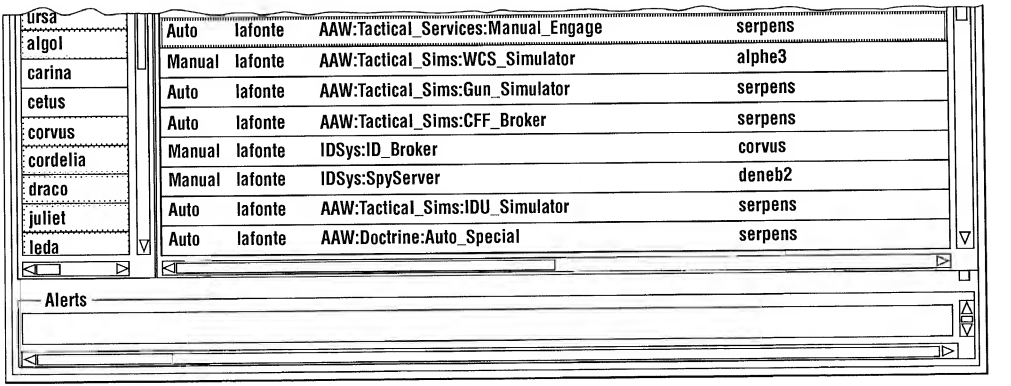


FIG.5B

FIG.6A

(SEE FIG.6B)

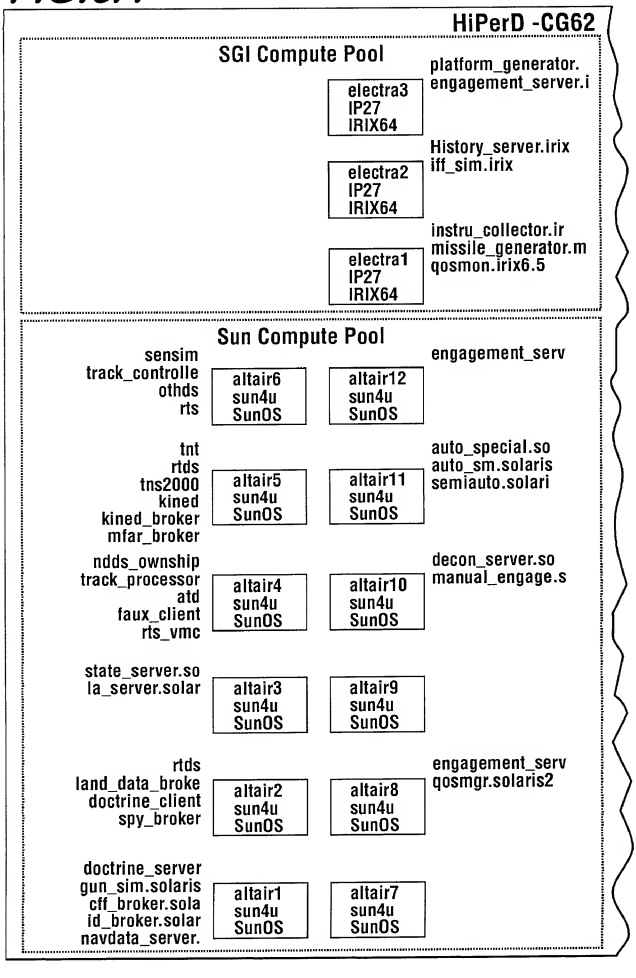


FIG.6B

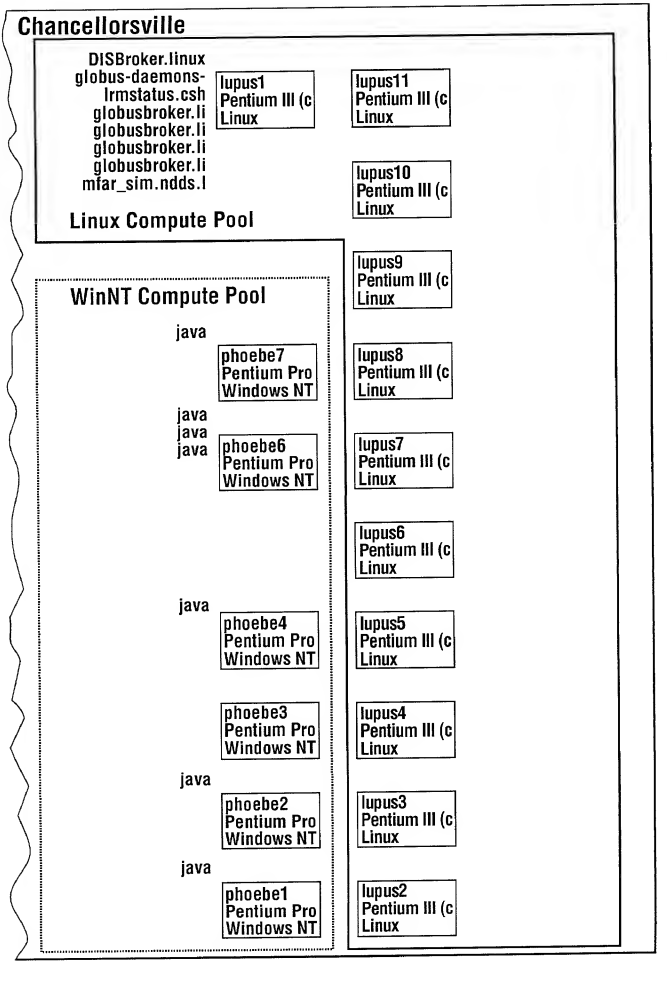
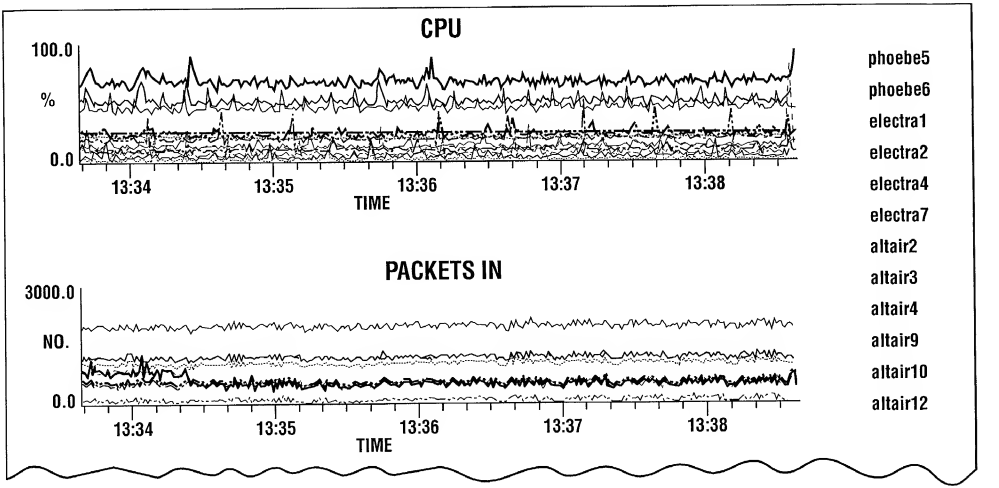

Chancellorsville
DISBroker.linux
globus-daemons-
lrmstatus.csh
globusbroker.li
globusbroker.li
globusbroker.li
globusbroker.li
mfar_sim.ndds.l
lupus1
Pentium III (c
Linux
lupus11
Pentium III (c
Linux
lupus10
Pentium III (c
Linux
Linux Compute Pool
lupus9
Pentium III (c
Linux
WinNT Compute Pool
java
phoebe7
Pentium Pro
Windows NT
lupus8
Pentium III (c
Linux
java
java
java
phoebe6
Pentium Pro
Windows NT
lupus7
Pentium III (c
Linux
lupus6
Pentium III (c
Linux
java
phoebe4
Pentium Pro
Windows NT
lupus5
Pentium III (c
Linux
phoebe3
Pentium Pro
Windows NT
lupus4
Pentium III (c
Linux
java
phoebe2
Pentium Pro
Windows NT
lupus3
Pentium III (c
Linux
java
phoebe1
Pentium Pro
Windows NT
lupus2
Pentium III (c
Linux

FIG. 7A



(SEE FIG. 7B)

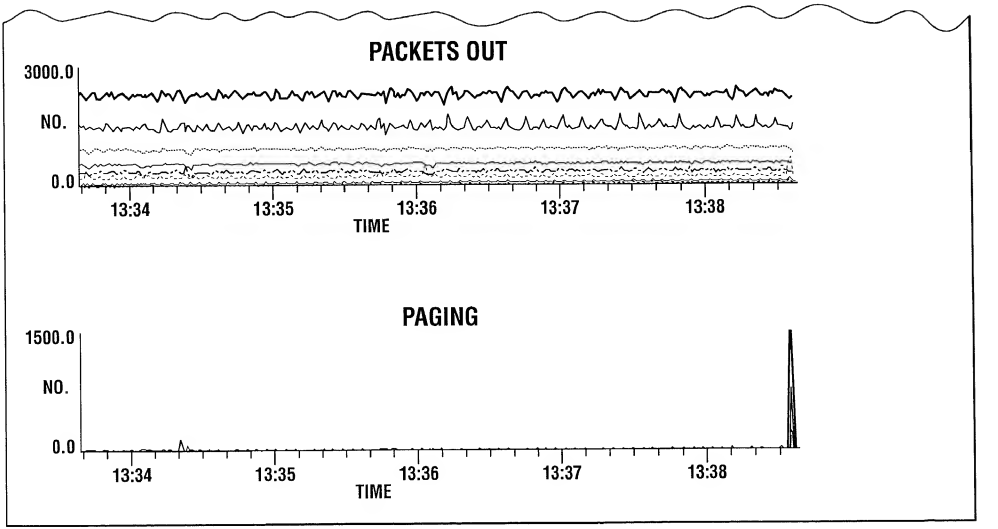
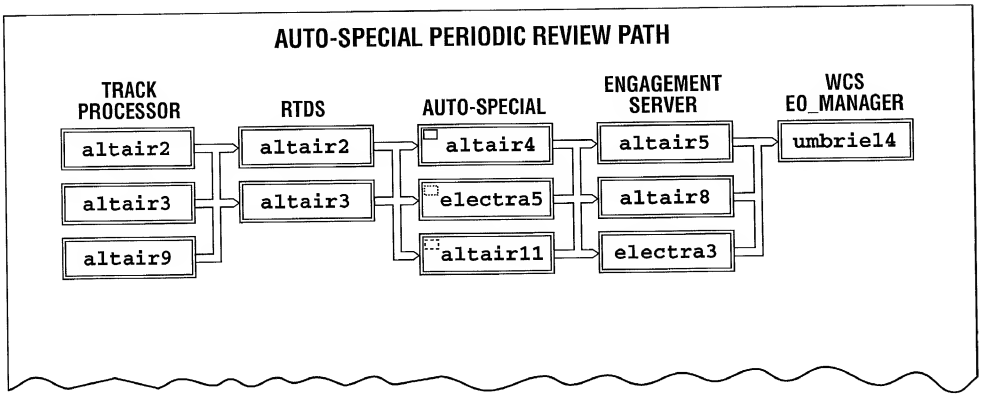


FIG. 7B

FIG.8A



(SEE FIG.8B)

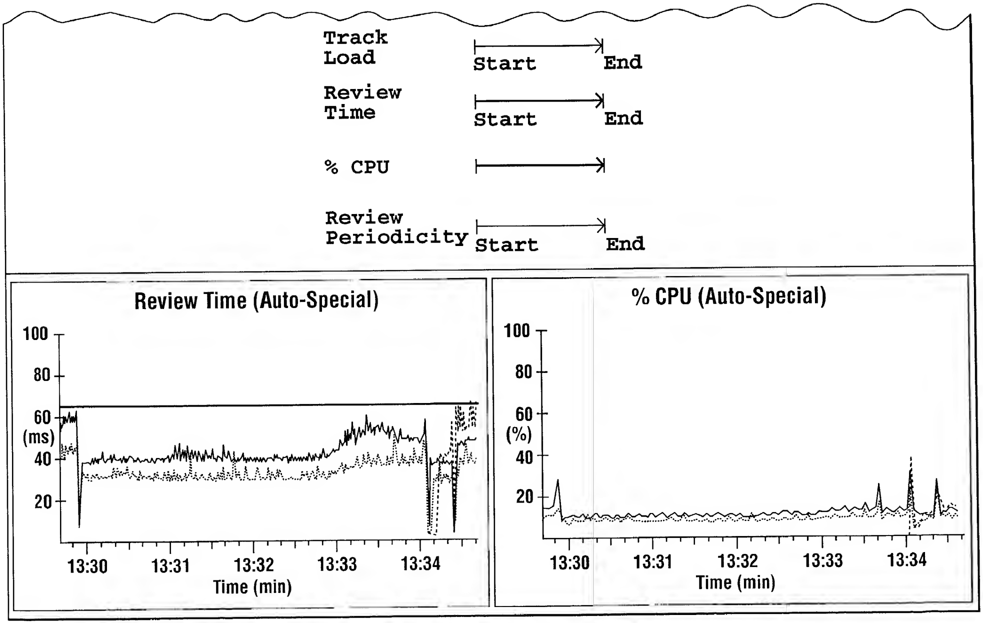
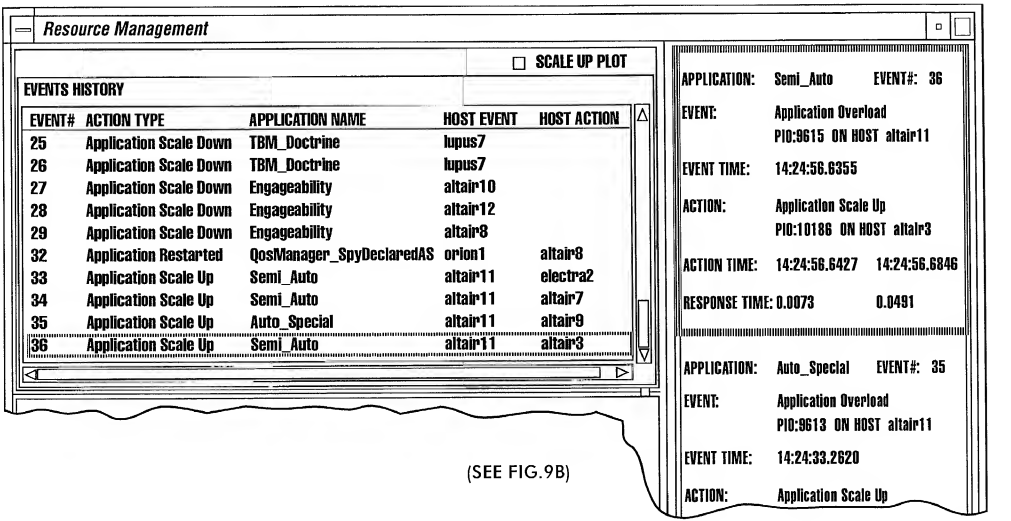

Track Load
Start
End
Review Time
Start
End
% CPU
Review Periodicity
Start
End
Review Time (Auto-Special)
100
80
60
(ms)
40
20
13:30
13:31
13:32
13:33
13:34
Time (min)
% CPU (Auto-Special)
100
80
60
(%)
40
20
13:30
13:31
13:32
13:33
13:34
Time (min)

FIG.8B

FIG.9A



(SEE FIG.9B)

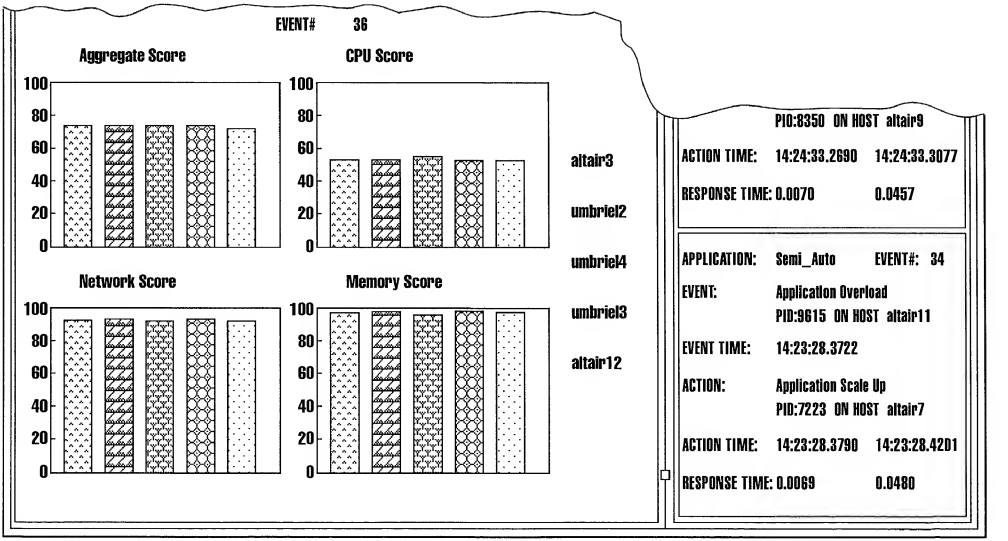
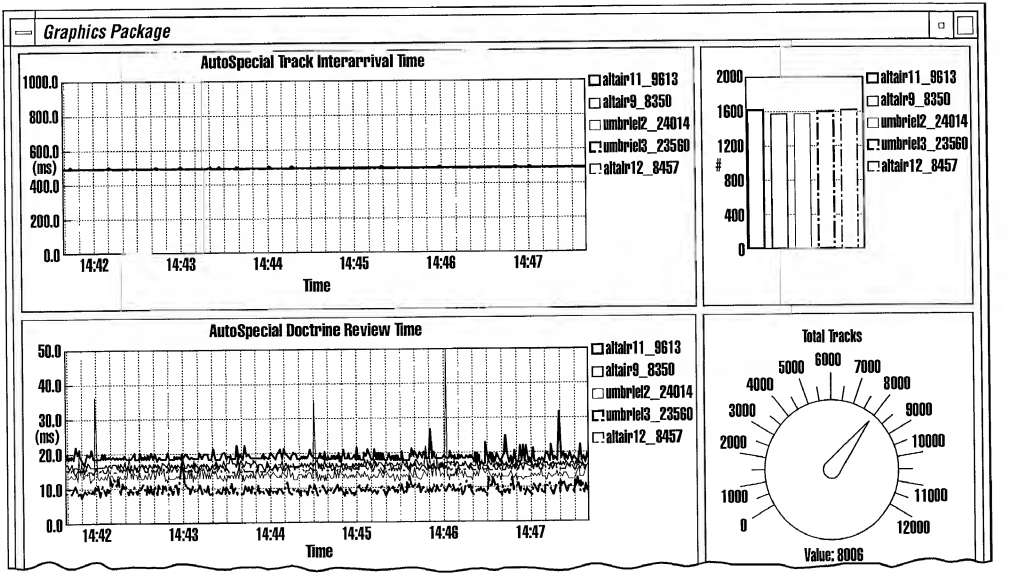

EVENT# 36
Aggregate Score
CPU Score
Network Score
Memory Score
100
80
60
40
20
0
altair3
umbriel2
umbriel4
umbriel3
altair12
PID:8350 ON HOST altair9
ACTION TIME: 14:24:33.2690 14:24:33.3077
RESPONSE TIME: 0.0070 0.0457
APPLICATION: Semi_Auto EVENT#: 34
EVENT: Application Overload
PID:9615 ON HOST altair11
EVENT TIME: 14:23:28.3722
ACTION: Application Scale Up
PID:7223 ON HOST altair7
ACTION TIME: 14:23:28.3790 14:23:28.42D1
RESPONSE TIME: 0.0069 0.0480

FIG.9B

FIG.10A



(SEE FIG.10B)

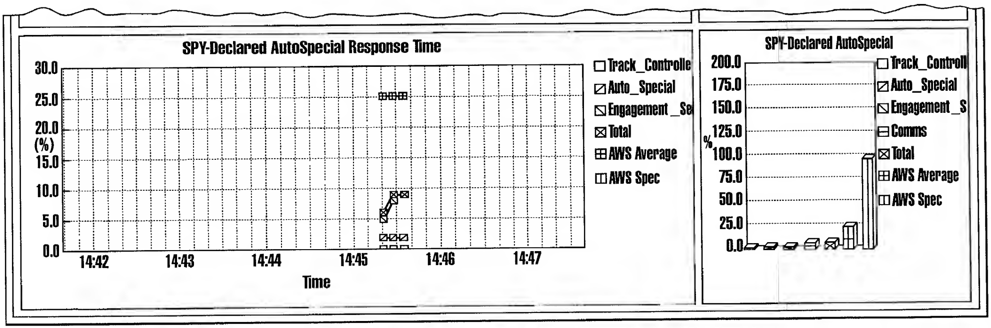
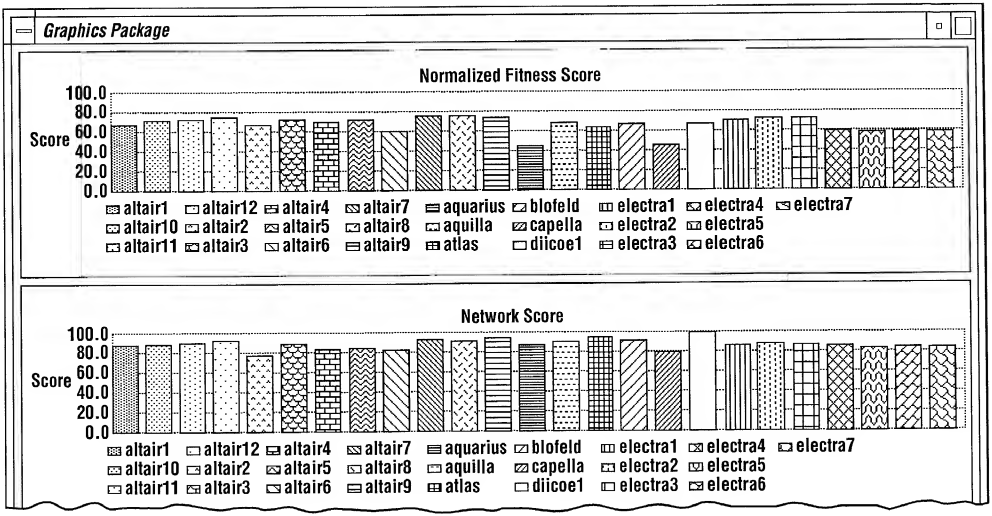

SPY-Declared AutoSpecial Response Time
30.0
25.0
20.0
(%)
15.0
10.0
5.0
0.0
14:42
14:43
14:44
14:45
14:46
14:47
Time
Track_Controlle
Auto_Special
Engagement_Se
Total
AWS Average
AWS Spec
SPY-Declared AutoSpecial
200.0
175.0
150.0
125.0
%
100.0
75.0
50.0
25.0
0.0
Track_Controll
Auto_Special
Engagement_S
Comms
Total
AWS Average
AWS Spec

FIG. 10B

FIG. 11A



(SEE FIG.11B)

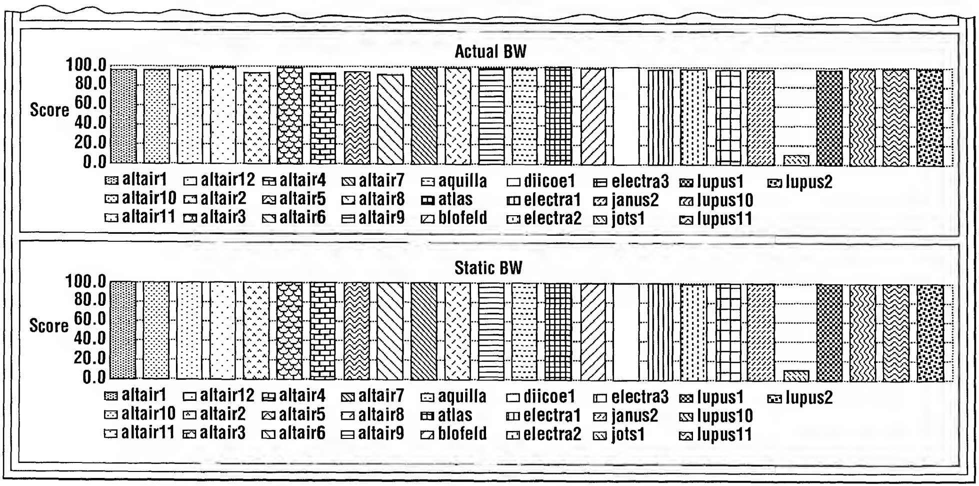
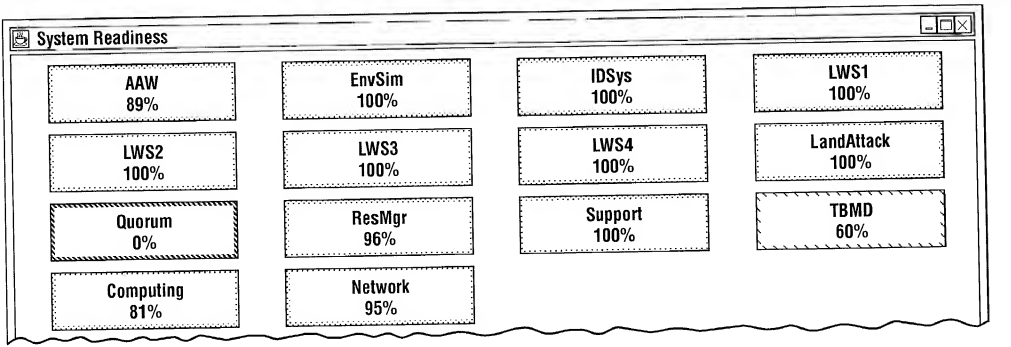


FIG.11B

FIG.12A



(SEE FIG.12B)

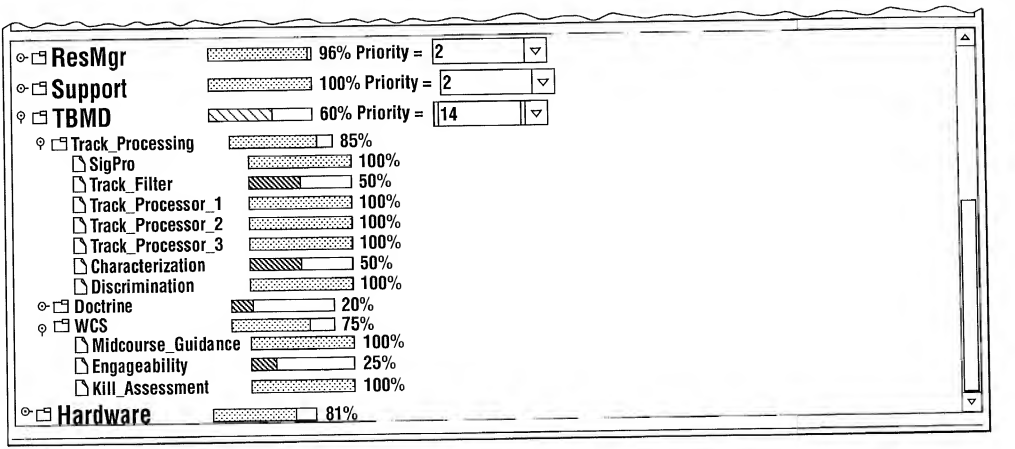
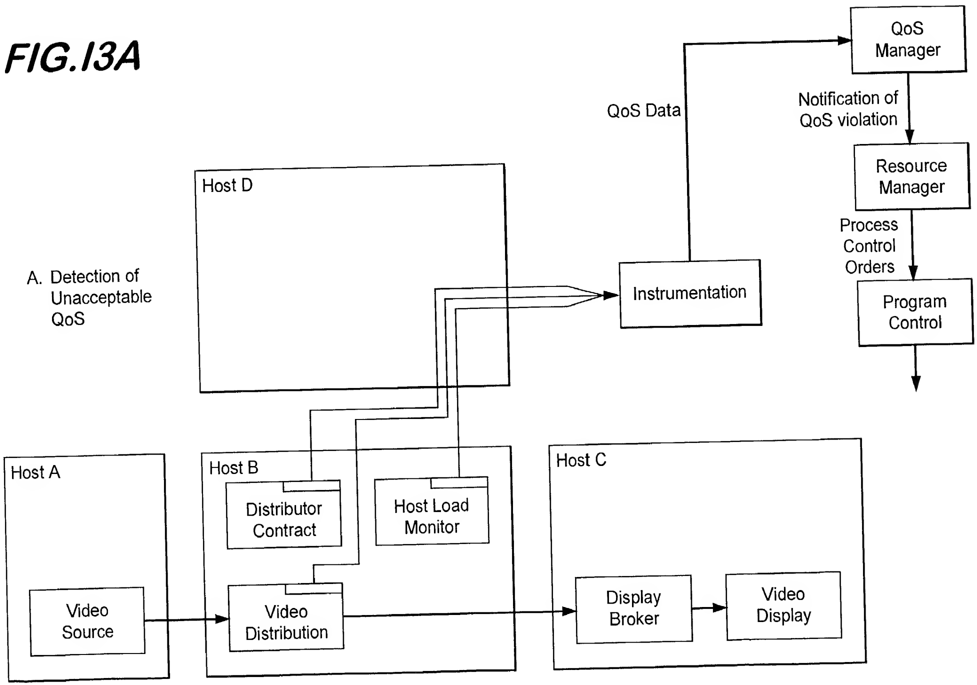

ResMgr
96% Priority = 2
Support
100% Priority = 2
TBMD
60% Priority = 14
Track_Processing
85%
SigPro
100%
Track_Filter
50%
Track_Processor_1
100%
Track_Processor_2
100%
Track_Processor_3
100%
Characterization
50%
Discrimination
100%
Doctrine
20%
WCS
75%
Midcourse_Guidance
100%
Engageability
25%
Kill_Assessment
100%
Hardware
81%

FIG.12B

FIG.13A



A. Detection of Unacceptable QoS

FIG.13B

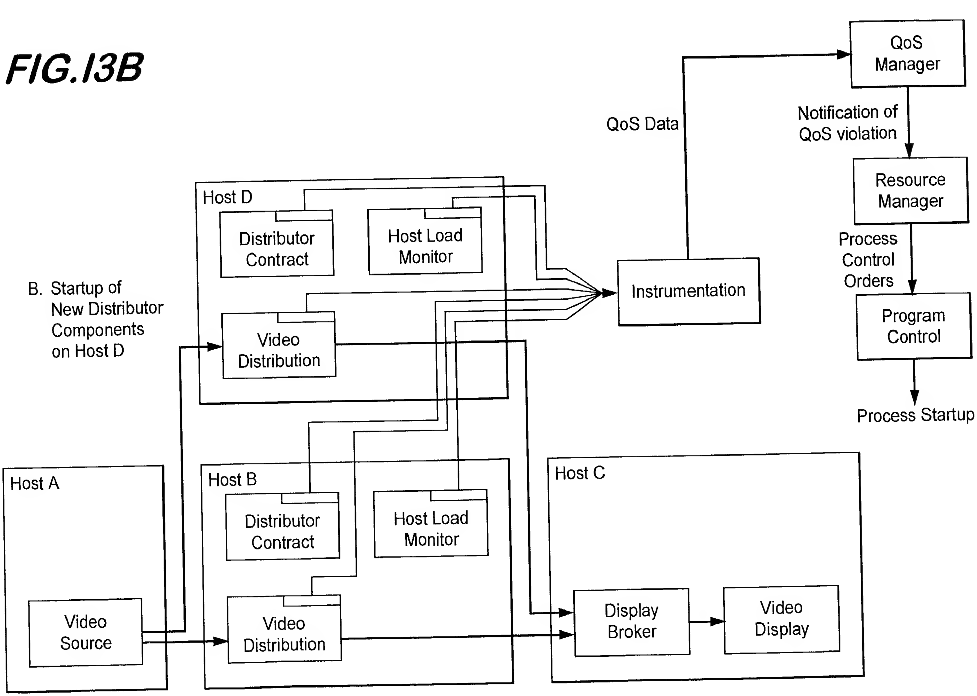


FIG.13C

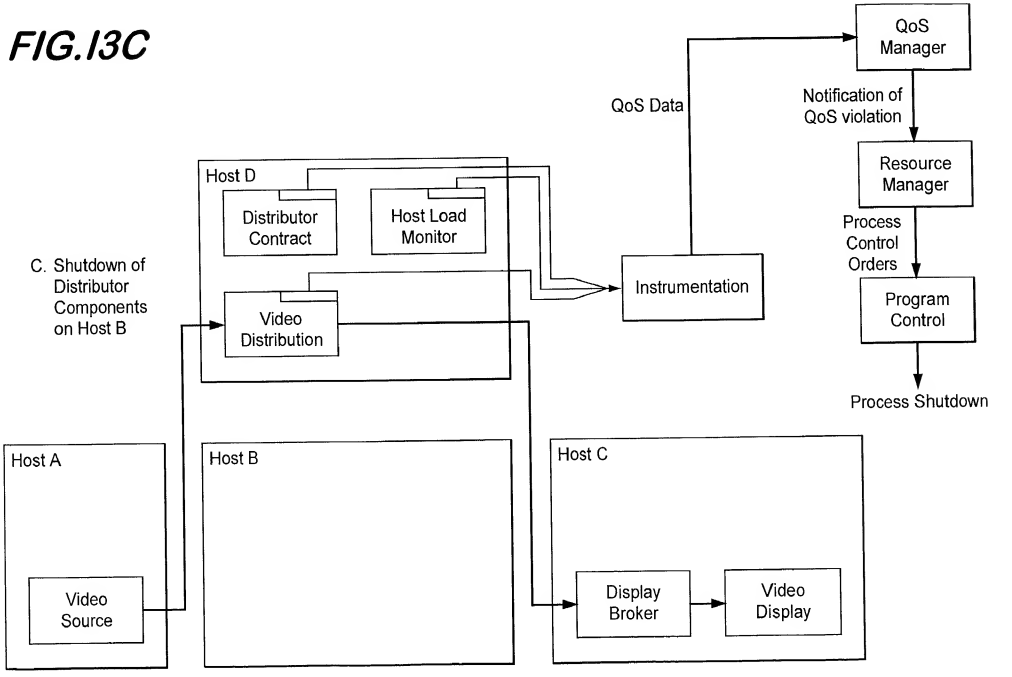


FIG. 14

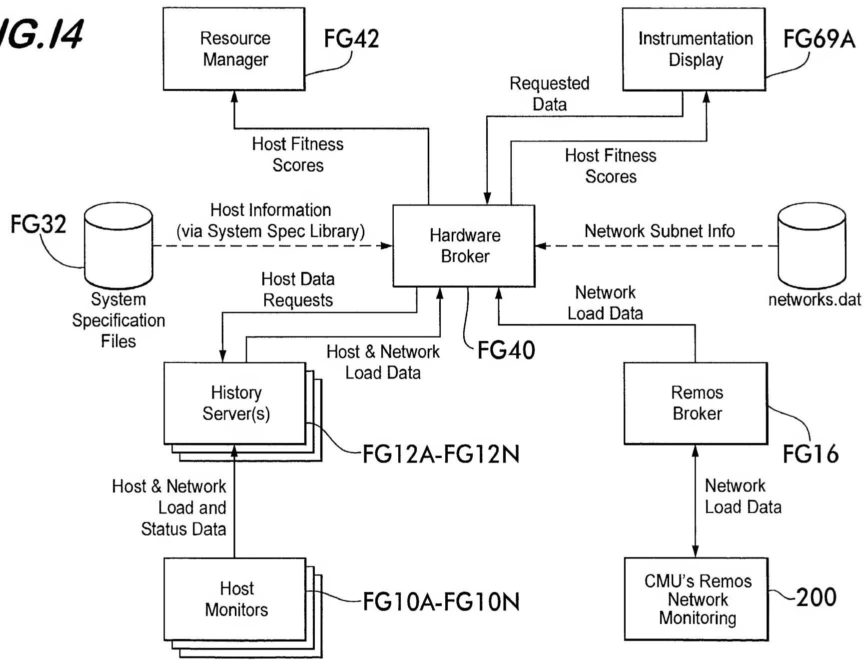
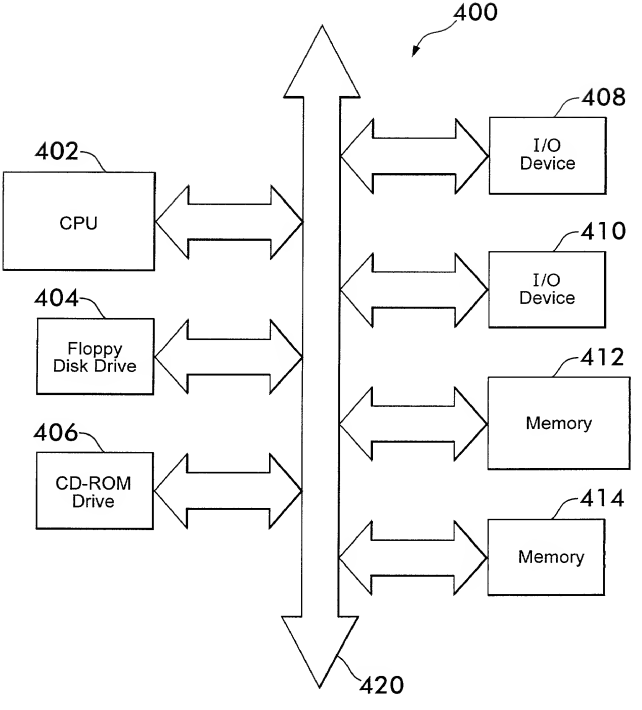


FIG.15


400
408
I/O Device
402
CPU
410
I/O Device
404
Floppy Disk Drive
412
Memory
406
CD-ROM Drive
414
Memory
420